

JIB-1571\_revisedDec2010\_ST25.txt  
SEQUENCE LISTING

<110> winter Sederoff, Heike  
Huber, Steven C  
Larabell, Carolyn A

<120> SYNTHETIC PEPTIDES THAT CAUSE F-ACTIN BUNDLING AND BLOCK ACTIN  
DEPOLYMERIZATION

<130> JIB-1571

<140> 10/576,757  
<141> 2006-04-20

<150> US 60/513,275  
<151> 2003-10-20

<160> 30

<170> PatentIn version 3.5

<210> 1  
<211> 15  
<212> PRT  
<213> Artificial

<220>  
<223> synthetic consensus active Zea mays Sucrose Synthase (SuSy)  
peptide

<400> 1

Glu Asn Gly Ile Val Arg Lys Trp Ile Ser Arg Phe Glu Val Trp  
1 5 10 15

<210> 2  
<211> 15  
<212> PRT  
<213> Artificial

<220>  
<223> synthetic peptide derived from Zea mays SuSy1 protein 367-381

<400> 2

Glu Asn Gly Ile Leu Arg Lys Trp Ile Ser Arg Phe Asp Val Trp  
1 5 10 15

<210> 3  
<211> 15  
<212> PRT  
<213> Artificial

<220>  
<223> synthetic peptide derived from Zea mays SuSy2 protein 357-389

<400> 3

Glu Asn Gly Ile Val Arg Lys Trp Ile Ser Arg Phe Glu Val Trp  
1 5 10 15

<210> 4  
 <211> 15  
 <212> PRT  
 <213> Artificial

<220>  
 <223> synthetic peptide derived from Zea mays SuSy3 protein  
 <400> 4

Glu Asn Gly Ile Leu Lys Lys Trp Ile Ser Arg Phe Asp Val Trp  
 1 5 10 15

<210> 5  
 <211> 15  
 <212> PRT  
 <213> Artificial

<220>  
 <223> synthetic peptide derived from Drosophila melanogaster Actin 2  
 protein and Homo sapiens beta and gamma Actin proteins  
 <400> 5

Glu His Gly Ile Val Thr Asn Trp Asp Asp Met Glu Lys Ile Trp  
 1 5 10 15

<210> 6  
 <211> 15  
 <212> PRT  
 <213> Artificial

<220>  
 <223> synthetic peptide derived from Drosophila melanogaster Actin 3,  
 5, and 6 proteins and Homo sapiens alpha Actin protein  
 <400> 6

Glu His Gly Ile Ile Thr Asn Trp Asp Asp Met Glu Lys Ile Trp  
 1 5 10 15

<210> 7  
 <211> 15  
 <212> PRT  
 <213> Artificial

<220>  
 <223> synthetic peptide derived from Drosophila melanogaster ARP1  
 <400> 7

Glu His Gly Ile Val Lys Asp Trp Asn Asp Met Glu Arg Ile Trp  
 1 5 10 15

<210> 8  
 <211> 15  
 <212> PRT  
 <213> Artificial

<220>  
<223> synthetic peptide derived from Drosophila melanogaster ARP2

<400> 8

Glu	Asn	Gly	Val	Val	Arg	Asn	Trp	Asp	Asp	Met	Cys	His	Val	Trp
1				5					10					15

<210> 9  
<211> 17  
<212> PRT  
<213> Artificial

<220>  
<223> synthetic SS1 inactive control peptide

<220>  
<221> peptide  
<222> (1)..(17)

<400> 9

Gly	Asp	Arg	Val	Leu	Ser	Arg	Leu	His	Ser	Val	Arg	Glu	Arg	Ile	Gly
1				5					10					15	

Lys

<210> 10  
<211> 18  
<212> PRT  
<213> Artificial

<220>  
<223> SS2 active peptide based on Zea mays SuSy 377-392

<400> 10

Gly	Ile	Val	Arg	Lys	Trp	Ile	Ser	Arg	Phe	Glu	Val	Trp	Pro	Tyr	Leu
1				5					10					15	

Lys Lys

<210> 11  
<211> 15  
<212> PRT  
<213> Artificial

<220>  
<223> SS11 inactive synthetic peptide

<400> 11

Ile	Leu	Arg	Val	Pro	Phe	Arg	Thr	Glu	Asn	Gly	Ile	Val	Arg	Lys
1				5					10					15

<210> 12  
 <211> 16  
 <212> PRT  
 <213> Artificial

<220>  
 <223> SS12 active synthetic peptide

<400> 12

Gly Ile Val Arg Lys Trp Ile Ser Arg Phe Glu Val Trp Pro Tyr Leu  
 1 5 10 15

<210> 13  
 <211> 16  
 <212> PRT  
 <213> Artificial

<220>  
 <223> SS15 less active synthetic peptide

<220>  
 <221> SITE  
 <222> (6)..(6)  
 <223> replaced Tryptophan residue with Alanines

<220>  
 <221> SITE  
 <222> (13)..(13)  
 <223> replaced Tryptophan residue with Alanine

<400> 13

Gly Ile Val Arg Lys Ala Ile Ser Arg Phe Glu Val Ala Pro Tyr Leu  
 1 5 10 15

<210> 14  
 <211> 9  
 <212> PRT  
 <213> Artificial

<220>  
 <223> SS16 less active synthetic peptide corresponding to short middle portion of SS12 synthetic peptide

<400> 14

Ser Arg Phe Glu Val Trp Pro Tyr Leu  
 1 5

<210> 15  
 <211> 19  
 <212> PRT  
 <213> Artificial

<220>  
 <223> NR11 inactive synthetic peptide

<400> 15

Gly Pro Thr Leu Lys Arg Thr Ala Ser Thr Ala Phe Met Asn Thr Thr  
1 5 10 15

Ser Lys Lys

<210> 16

<211> 14

<212> PRT

<213> Artificial

<220>

<223> SP26 inactive synthetic peptide

<400> 16

Gly Arg Met Arg Arg Ile Ala Thr Val Glu Met Met Lys Lys  
1 5 10

<210> 17

<211> 8

<212> PRT

<213> Artificial

<220>

<223> Small block of SS12 sequence required for less active synthetic peptide

<400> 17

Trp Ile Ser Arg Phe Glu Val Trp  
1 5

<210> 18

<211> 10

<212> PRT

<213> Artificial

<220>

<223> SP3 inactive synthetic peptide

<400> 18

Arg Arg Ile Ser Ser Val Glu Asp Lys Lys  
1 5 10

<210> 19

<211> 20

<212> PRT

<213> Artificial

<220>

<223> synthetic peptide of Drosophila melanogaster Actin protein consensus sequence

<400> 19

Glu His Gly Ile Val Thr Asn Trp Asp Asp Met Glu Lys Ile Trp His  
1 5 10 15

His Thr Phe Tyr  
20

<210> 20

<211> 15

<212> PRT

<213> Artificial

<220>

<223> synthetic peptide derived from Homo sapiens ARP1 protein

<400> 20

Glu His Gly Val Val Arg Asp Trp Asn Asp Met Glu Arg Ile Trp  
1 5 10 15

<210> 21

<211> 15

<212> PRT

<213> Artificial

<220>

<223> synthetic peptide derived from Homo sapiens ARP2 protein

<400> 21

Glu Asn Gly Ile Val Arg Asn Trp Asp Asp Met Lys His Leu Trp  
1 5 10 15

<210> 22

<211> 6

<212> PRT

<213> Artificial

<220>

<223> Core minimum block of SS12 sequence required for less active  
synthetic peptide

<400> 22

Ser Arg Phe Glu Val Trp  
1 5

<210> 23

<211> 13

<212> PRT

<213> Artificial

<220>

<223> SS synthetic peptide B

<400> 23

Trp Ile Ser Arg Phe Glu Val Trp Pro Tyr Leu Lys Lys  
 1 5 10

<210> 24  
 <211> 20  
 <212> PRT  
 <213> Artificial

<220>  
 <223> SS synthetic peptide C

<400> 24

Glu Asn Gly Ile Val Arg Lys Trp Ile Ser Arg Phe Glu Val Trp Pro  
 1 5 10 15

Tyr Leu Lys Lys  
 20

<210> 25  
 <211> 20  
 <212> PRT  
 <213> Artificial sequence

<220>  
 <223> Consensus sequence of Synthetic Susy and ARP sequences

<220>  
 <221> VARIANT  
 <222> (2)..(2)  
 <223> X=His or Asn

<220>  
 <221> VARIANT  
 <222> (5)..(5)  
 <223> X= Val or Leu

<220>  
 <221> VARIANT  
 <222> (6)..(6)  
 <223> X= Arg, Tyr or Lys

<220>  
 <221> VARIANT  
 <222> (7)..(7)  
 <223> X= Lys, Asn, Asp

<220>  
 <221> VARIANT  
 <222> (9)..(9)  
 <223> X= Ile or Asp

<220>  
 <221> VARIANT  
 <222> (9)..(9)  
 <223> X= Ile or Asp or Asn

<220>  
 <221> VARIANT

<222> (10)..(10)  
 <223> X= Ser or Asp

<220>  
 <221> VARIANT  
 <222> (11)..(11)  
 <223> X= Arg or Met

<220>  
 <221> VARIANT  
 <222> (12)..(12)  
 <223> X= Glu, Phe, Cys, or Lys

<220>  
 <221> VARIANT  
 <222> (13)..(13)  
 <223> X= Glu, Asp, Lys, Arg, or His

<220>  
 <221> VARIANT  
 <222> (14)..(14)  
 <223> X= Ile, Leu, or Val

<220>  
 <221> VARIANT  
 <222> (16)..(16)  
 <223> X= His-His-Thr-Phe

<220>  
 <221> VARIANT  
 <222> (16)..(16)  
 <223> X= His or none

<220>  
 <221> VARIANT  
 <222> (17)..(17)  
 <223> X= His or none

<220>  
 <221> VARIANT  
 <222> (18)..(18)  
 <223> X= Thr or none

<220>  
 <221> VARIANT  
 <222> (19)..(19)  
 <223> X= Phe or none

<220>  
 <221> VARIANT  
 <222> (20)..(20)  
 <223> X= Tyr or none

<400> 25

Glu Xaa Gly Ile Xaa Xaa Xaa Trp Xaa Xaa Xaa Xaa Xaa Trp Xaa  
 1 5 10 15

Xaa Xaa Xaa Xaa  
 20



<210> 26  
 <211> 15  
 <212> PRT  
 <213> Artificial sequence

<220>  
 <223> Motif for a synthetic peptide which causes actin bundling and inhibits actin depolymerization

<220>  
 <221> VARIANT  
 <222> (2)..(2)  
 <223> X = any amino acid

<220>  
 <221> VARIANT  
 <222> (4)..(4)  
 <223> X = Ile or Val

<220>  
 <221> VARIANT  
 <222> (5)..(7)  
 <223> X = any amino acid

<220>  
 <221> VARIANT  
 <222> (9)..(14)  
 <223> X = any amino acid

<400> 26

Glu	Xaa	Gly	Xaa	Xaa	Xaa	Xaa	Trp	Xaa	Xaa	Xaa	Xaa	Xaa	Trp
1			5					10					15

<210> 27  
 <211> 15  
 <212> PRT  
 <213> Artificial sequence

<220>  
 <223> Motif for a synthetic peptide that causes actin bundling and inhibits actin depolymerization

<220>  
 <221> VARIANT  
 <222> (2)..(2)  
 <223> X= Lys, Arg, or His

<220>  
 <221> VARIANT  
 <222> (5)..(5)  
 <223> X= Ala, Val, Leu, Ile, Phe, Trp, Pro, or Met

<220>  
 <221> VARIANT  
 <222> (6)..(6)  
 <223> X= Lys, Arg, or His

<220>  
 <221> VARIANT

<222> (7)..(7)  
 <223> X= any amino acid

<220>  
 <221> VARIANT  
 <222> (9)..(13)  
 <223> X= any amino acid

<220>  
 <221> VARIANT  
 <222> (14)..(14)  
 <223> X= Ala, Val, Leu, Ile, Phe, Trp, Pro, or Met

<400> 27

Glu xaa Gly Ile xaa xaa xaa Trp xaa xaa xaa xaa xaa xaa Trp  
 1 5 10 15

<210> 28  
 <211> 16  
 <212> PRT  
 <213> Artificial Sequence

<220>  
 <223> Formula (I) for active synthetic peptides

<220>  
 <221> VARIANT  
 <222> (3)..(3)  
 <223> X = Ile, Val, or Leu

<220>  
 <221> VARIANT  
 <222> (4)..(4)  
 <223> X = Arg, Lys, Asn, or Thr

<220>  
 <221> VARIANT  
 <222> (5)..(5)  
 <223> X = Arg, Lys, Asn, or Asp

<220>  
 <221> VARIANT  
 <222> (7)..(7)  
 <223> X = Ile, Asp, Asn, or Glu

<220>  
 <221> VARIANT  
 <222> (8)..(8)  
 <223> X = Ser, or Asp

<220>  
 <221> VARIANT  
 <222> (9)..(9)  
 <223> X = Arg, Met, or Ala

<220>  
 <221> VARIANT  
 <222> (10)..(10)  
 <223> X = Phe, or Glu

<220>  
 <221> VARIANT  
 <222> (11)..(11)  
 <223> X =Asp, Glu, Lys, Arg, or His

<220>  
 <221> VARIANT  
 <222> (12)..(12)  
 <223> X =Val, or Ile

<220>  
 <221> VARIANT  
 <222> (14)..(14)  
 <223> X =Pro, or His

<220>  
 <221> VARIANT  
 <222> (15)..(15)  
 <223> X =Tyr, or His

<220>  
 <221> VARIANT  
 <222> (16)..(16)  
 <223> X =Leu, or Thr

<400> 28

Gly Ile xaa xaa xaa Trp xaa xaa xaa xaa xaa xaa Trp xaa xaa xaa  
 1 5 10 15

<210> 29  
 <211> 13  
 <212> PRT  
 <213> Artificial Sequence

<220>  
 <223> Formula (II) for synthetic active peptides

<220>  
 <221> VARIANT  
 <222> (3)..(3)  
 <223> X = Ala, Val, Leu, Ile, Phe, Trp, Pro, or Met

<220>  
 <221> VARIANT  
 <222> (4)..(4)  
 <223> X = Lys, Arg, or His

<220>  
 <221> VARIANT  
 <222> (5)..(5)  
 <223> X = any amino acid

<220>  
 <221> VARIANT  
 <222> (7)..(11)  
 <223> X = any amino acid

<220>  
 <221> VARIANT  
 <222> (12)..(12)

<223> X = Ala, Val, Leu, Ile, Phe, Trp, Pro, or Met

<400> 29

Gly Ile Xaa Xaa Xaa Trp Xaa Xaa Xaa Xaa Xaa Xaa Trp  
1 5 10

<210> 30

<211> 7

<212> PRT

<213> Artificial sequence

<220>

<223> SS2 and SS12 subsequence necessary for peptide activity

<400> 30

Gly Ile Val Arg Trp Lys Ile  
1 5